Artham Resource Material

For Revised Syllabus Session 2024-25

EXEMPLAR SOLUTIONS MATH'S

ChAPTER 3-Understanding Quadrilaterals and Practical

Class 8

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Chapter 3
Understanding Quadrilaterals and Practical Geometry

EXERCISE

In questions 1 to 52, there are four options, out of which one is correct. Write the correct answer.

1. If three angles of a quadrilateral are each equal to 75°, the fourth angle is

(a) 150° (b) 135° (c) 45° (d) 75°

Solution:-

(b) 135°

We know that, sum of interior angles of quadrilateral is equal to 360°.

From the question it is given that, three angles of a quadrilateral are each equal to 75°.

Let us assume the fourth angle be x.

Then, $75^\circ + 75^\circ + 75^\circ + x = 360^\circ$

$225 + x = 360^\circ$

$x = 360^\circ - 225$

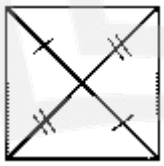
$x = 135^\circ$

2. For which of the following, diagonals bisect each other?

(a) Square (b) Kite (c) Trapezium (d) Quadrilateral

Solution:-

(a) Square

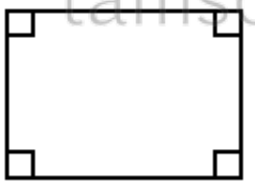


3. For which of the following figures, all angles are equal?

(a) Rectangle (b) Kite (c) Trapezium (d) Rhombus

Solution:-

(a) Rectangle



So, in rectangle all angles are equal to 90°.

4. For which of the following figures, diagonals are perpendicular to each other?

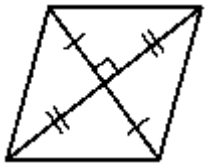
(a) Parallelogram (b) Kite

(c) Trapezium **(d) Rectangle**

Solution:-

(b) Kite

In kite, diagonals are perpendicular to each other is as shown in the figure below.



5. For which of the following figures, diagonals are equal?

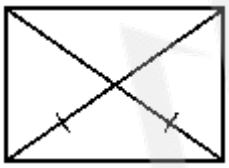
(a) Trapezium **(b) Rhombus**

(c) Parallelogram **(d) Rectangle**

Solution:-

(d) Rectangle

For rectangle, diagonals are equal is as shown in the figure below.



6. Which of the following figures satisfy the following properties?

- All sides are congruent.

- All angles are right angles.

- Opposite sides are parallel.

(a) P (b) Q (c) R (d) S

Solution:-

(c) R

So, square has all sides are congruent, all angles are right angles and opposite sides are parallel.

7. Which of the following figures satisfy the following property?

- Has two pairs of congruent adjacent sides.

(a) P (b) Q (c) R (d) S

Solution:-

(c) R

8. Which of the following figures satisfy the following property?

- Only one pair of sides are parallel.

(a) P (b) Q (c) R (d) S

Solution:-

(a) P

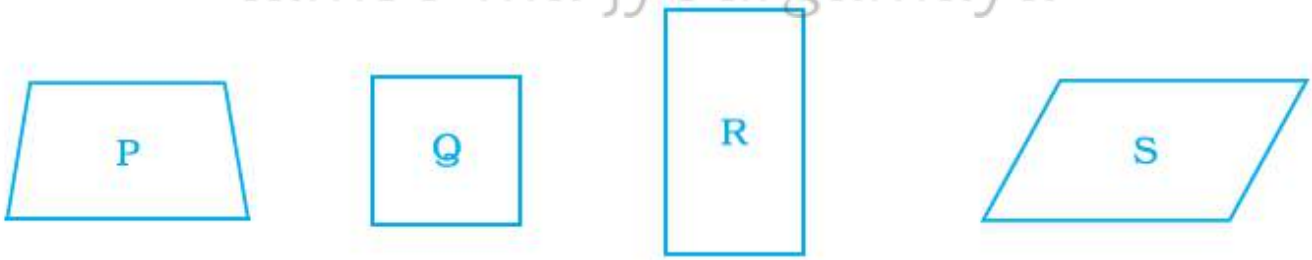
By observing the above figure we can able say that trapezium has only one pair of sides are parallel.

9. Which of the following figures do not satisfy any of the following properties?

- All sides are equal.

- All angles are right angles.

- Opposite sides are parallel.

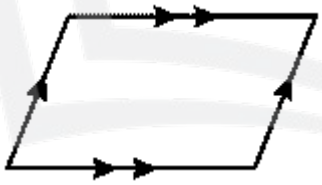


(a) P (b) Q (c) R (d) S

Solution:-
(a) P
By observing the above figure we can able say that trapezium do not satisfy any of the properties mentioned in the question.

10. Which of the following properties describe a trapezium?
(a) A pair of opposite sides is parallel.
(b) The diagonals bisect each other.
(c) The diagonals are perpendicular to each other.
(d) The diagonals are equal.
Solution:-
(a) A pair of opposite sides is parallel.

11. Which of the following is a property of a parallelogram?
(a) Opposite sides are parallel.
(b) The diagonals bisect each other at right angles.
(c) The diagonals are perpendicular to each other.
(d) All angles are equal.
Solution:-
(a) Opposite sides are parallel.



12. 12. What is the maximum number of obtuse angles that a quadrilateral can have?
(a) 1 (b) 2 (c) 3 (d) 4
Solution:-
(c) 3
As we know that, obtuse angle is an angle between 90^o to 180^o.
The sum of the interior angles of a quadrilateral is equal to 360o. So all the angles can't be obtuse since then the sum will more than 3600. Therefore a maximum of 3 obtuse angles that a quadrilateral have.

13. How many non-overlapping triangles can we make in a n-gon (polygon having n sides), by joining the vertices?

(a) n –1 **(b) n –2** **(c) n –3** **(d) n –4**

Solution:-

(b) n – 2

14. What is the sum of all the angles of a pentagon?

(a) 180° **(b) 360°** **(c) 540°** **(d) 720°**

Solution:-

(c) 540°

We know that, the sum of all the angles of a polygon is (n - 2) × 180°.

Where 'n' is the number of sides in the polygon,

Then, pentagon has 5 sides, i.e. n = 5

So, (n - 2) × 180°

(5 - 2) × 180°

3 × 180°

540°

15. What is the sum of all angles of a hexagon?

(a) 180° **(b) 360°** **(c) 540°** **(d) 720°**

Solution:-

(d) 720°

We know that, the sum of all the angles of a polygon is (n - 2) × 180°.

Where 'n' is the number of sides in the polygon,

Then, hexagon has 6 sides, i.e. n = 6

So, (n - 2) × 180°

(6 - 2) × 180°

4 × 180°

720°

16. If two adjacent angles of a parallelogram are (5x – 5)° and (10x + 35)°, then the ratio of these angles is

(a) 1 : 3 **(b) 2 : 3** **(c) 1 : 4** **(d) 1 : 2**

Solution:-

(a) 1: 3

17. A quadrilateral whose all sides are equal, opposite angles are equal and the diagonals bisect each other at right angles is a _____.

(a) rhombus **(b) parallelogram** **(c) square** **(d) rectangle**

Solution:-
(a) rhombus
A quadrilateral whose all sides are equal, opposite angles are equal and the diagonals bisect each other at right angles is a rhombus.

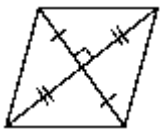
18. A quadrilateral whose opposite sides and all the angles are equal is a
(a) rectangle (b) parallelogram (c) square (d) rhombus
Solution:-
(a) rectangle

19. A quadrilateral whose all sides, diagonals and angles are equal is a
(a) square (b) trapezium (c) rectangle (d) rhombus
Solution:-
(a) Square

20. How many diagonals does a hexagon have?
(a) 9 (b) 8 (c) 2 (d) 6
Solution:-
(a) 9
We know that,
The number of diagonals in a polygon of n sides is n(n - 3)/2
Where n = 6
Then,

$= 6 \times (6 - 3)/2$
$= 6 \times 3/2$
$= 18/2$
$= 9$

21. If the adjacent sides of a parallelogram are equal then parallelogram is a
(a) rectangle (b) trapezium (c) rhombus (d) square
Solution:-
(c) rhombus



22. If the diagonals of a quadrilateral are equal and bisect each other, then the

quadrilateral is a

(a) rhombus **(b) rectangle** **(c) square** **(d) parallelogram**

Solution:-

(b) rectangle

23. The sum of all exterior angles of a triangle is

(a) 180° **(b) 360°** **(c) 540°** **(d) 720°**

Solution:-

(b) 360°

The sum of all exterior angles of a triangle is 360°

24. Which of the following is an equiangular and equilateral polygon?

(a) Square **(b) Rectangle** **(c) Rhombus** **(d) Right triangle**

Solution:-

(a) Square

Square is an equiangular and equilateral polygon.

25. Which one has all the properties of a kite and a parallelogram?

(a) Trapezium **(b) Rhombus** **(c) Rectangle** **(d) Parallelogram**

Solution:-

(b) Rhombus

Rhombus has all the properties of a kite and a parallelogram

26. The angles of a quadrilateral are in the ratio 1 : 2 : 3 : 4. The smallest angle is

(a) 72° **(b) 144°** **(c) 36°** **(d) 18°**

Solution:-

(c) 36°

We know that, sum of all interior angle of quadrilaterals is equal to 360°.

Let us assume the angles be x, 2x, 3x, and 4x

Then,

$x + 2x + 3x + 4x = 360°$

$10x = 360°$

$x = 360/10$

$x = 36$

Therefore the angles are $x = 36°$

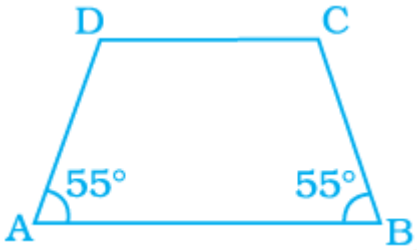
$2x = 2 \times 36 = 72°$

$3x = 3 \times 36 = 108°$

$4x = 4 \times 36 = 144°$

27. In the trapezium ABCD, the measure of ∠D is

(a) 55° **(b) 115°** **(c) 135°** **(d) 125°**



Solution:-

(d) 125°

By observing the given figure ∠D and ∠A are supplementary.

We know that, sum of supplementary angle is equal to 180°.

Then, ∠D + ∠A = 180°

∠D + 55° = 180°

∠D = 180° – 55°

∠D = 125°

28. A quadrilateral has three acute angles. If each measures 80°, then the measure of the fourth angle is

(a) 150° **(b) 120°** **(c) 105°** **(d) 140°**

Solution:-

(b) 120°

We know that, sum of all interior angle of quadrilaterals is equal to 360°.

Let us assume the fourth angle be x

Then,

80° + 80° + 80° + x = 360°

240° + x = 360°

x = 360° – 240°

x = 120°

29. The number of sides of a regular polygon where each exterior angle has a measure of 45° is

(a) 8 **(b) 10** **(c) 4** **(d) 6**

Solution:-

(a) 8

Now let us assume number of sides of a regular polygon be n.

WKT, sum of all exterior angles of all polygons is equal to 360°.

Form the question it is given that each exterior angle has a measure of 45^o.
Then,

$n \times 45^o = 360^o$
$n = 360^o/45^o$
$n = 8$

30. In a parallelogram PQRS, if $\angle P = 60^o$, then other three angles are
(a) $45^o, 135^o, 120^o$ **(b) $60^o, 120^o, 120^o$**
(c) $60^o, 135^o, 135^o$ **(d) $45^o, 135^o, 135^o$**
Solution:-
(b) $60^o, 120^o, 120^o$
In parallelogram $\angle P$ and $\angle Q$ are supplementary.
We know that, sum of supplementary angle is equal to 180^o.
Then, $\angle P + \angle Q = 180^o$

$\angle 60^o + \angle Q = 180^o$
$\angle P = 180^o - 60^o$
$\angle P = 120^o$

And also, opposite angles $\angle P$ and $\angle R$ are equal in parallelogram.
So, $\angle P = \angle R = 60^o$
$\angle Q = \angle S = 120^o$
Therefore, the other three angles of parallelograms are 60^o, 120^o and 120^o.

31. If two adjacent angles of a parallelogram are in the ratio 2 : 3, then the measure of angles are
(a) $72^o, 108^o$ **(b) $36^o, 54^o$** **(c) $80^o, 120^o$** **(d) $96^o, 144^o$**
Solution:-
(a) $72^o, 108^o$
We know that, sum of adjacent angles of a parallelogram = 180^o
Let us assume two angles be 2x and 3x
Then,

$2x + 3x = 180^o$
$5x = 180^o$
$x = 180^o/5$
$x = 36^o$

Therefore the two angles are $2x = 2 \times 36 = 72^o$
$3x = 3 \times 36 = 108^o$

32. If PQRS is a parallelogram, then ∠P – ∠R is equal to

(a) 60° **(b) 90°** **(c) 80°** **(d) 0°**

Solution:-

(d) 0°

We know that opposite angles ∠P and ∠R are equal in parallelogram.

So, ∠P - ∠R = 0°

33. The sum of adjacent angles of a parallelogram is

(a) 180° **(b) 120°** **(c) 360°** **(d) 90°**

Solution:-

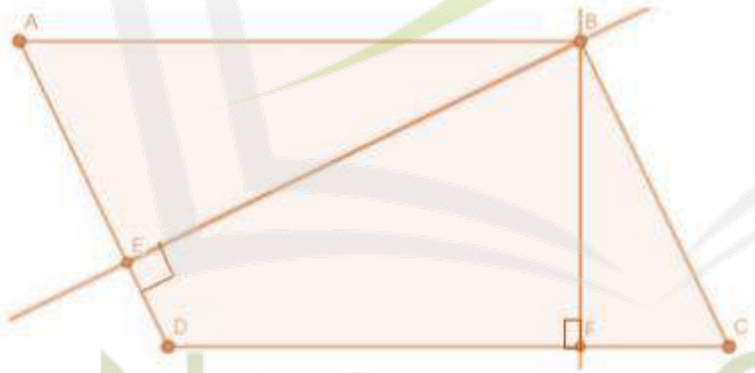
(a) 180°

34. The angle between the two altitudes of a parallelogram through the same vertex of an obtuse angle of the parallelogram is 30°. The measure of the obtuse angle is

(a) 100° **(b) 150°** **(c) 105°** **(d) 120°**

Solution:-

(b) 150°



ABCD is a parallelogram.

From the question it is given that, ∠EBF = 30°

WKT, sum of interior angles of a quadrilateral = 360°

Then,

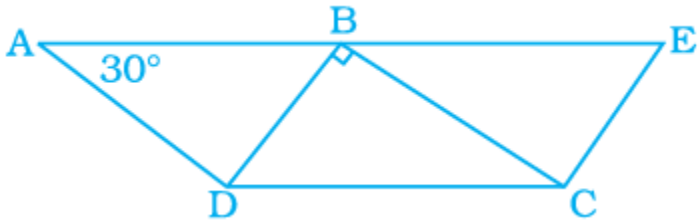
∠EBF + ∠BED + ∠EDF + ∠DFB = 360°

∠EDF = 360° – (90° + 90° + 30°)

∠EDF = 150° which is an obtuse angle.

35. In the given figure, ABCD and BDCE are parallelograms with common base DC. If BC ⊥ BD, then ∠BEC =

(a) 60° **(b) 30°** **(c) 150°** **(d) 120°**



Solution:-

(a) 60°

From the given figure,

∠BAD = 30°

∠BCD = 30° … [∵opposite angles of parallelogram are equal]

Now, let us consider the triangle CBD

From angle sum property, ∠DBC + ∠BCD + ∠CDB = 180°

$90^\circ + 30^\circ + \angle CDB = 180^\circ$

$120^\circ + \angle CDB = 180^\circ$

$\angle CDB = 180^\circ - 120^\circ$

$\angle CDB = 60^\circ$

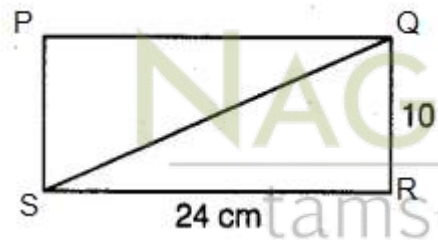
∴∠BEC = 60°, because opposite angles of parallelogram are equal.

36. Length of one of the diagonals of a rectangle whose sides are 10 cm and 24 cm is

(a) 25 cm **(b) 20 cm** **(c) 26 cm** **(d) 3.5 cm**

Solution:-

(c) 26 cm



PQRS is a rectangle,

Where SR = 24 cm, QR = 10 cm

Now, consider the triangle QRS

From the rule of Pythagoras theorem,

$QS^2 = SR^2 + QR^2$

$QS^2 = 24^2 + 10^2$

$QS^2 = 576 + 100$

$QS^2 = 676$
$QS = \sqrt{676}$
$QS = 26$ cm

37. If the adjacent angles of a parallelogram are equal, then the parallelogram is a
(a) rectangle (b) trapezium (c) rhombus (d) any of the three
Solution:-
(a) rectangle

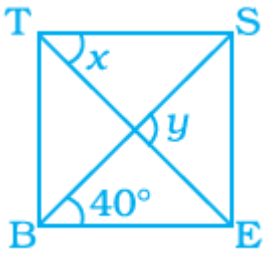
38. Which of the following can be four interior angles of a quadrilateral?
(a) 140°, 40°, 20°, 160° **(b) 270°, 150°, 30°, 20°**
(c) 40°, 70°, 90°, 60° **(d) 110°, 40°, 30°, 180°**
Solution:-
(a) 140°, 40°, 20°, 160°
We know that sum of interior angles of quadrilaterals is 360°.
So, 140° + 40° + 20° + 160° = 360°
In option (d) has angle sum equal to 360°, but one angle is 180° if it is considered then the quadrilateral becomes a triangle.

39. The sum of angles of a concave quadrilateral is
(a) more than 360° **(b) less than 360°**
(c) equal to 360° **(d) twice of 360°**
Solution:-
(c) equal to 360°
We know that sum of angles of concave and convex quadrilateral is equal to 360°.

40. Which of the following can never be the measure of exterior angle of a regular polygon?
(a) 22° **(b) 36°** **(c) 45°** **(d) 30°**
Solution:-
(a) 22°
We know that, Sum of exterior angles of a polygon is equal to 360^0
If we divide 360^0 by any one of the angles must be a whole number since it gives the number of sides.
Then, 360° divide by 22 it gives fraction. So 22° can never be the measure of exterior angle of a regular polygon.

41. In the figure, BEST is a rhombus, Then the value of y – x is

(a) 40° **(b) 50°** **(c) 20°** **(d) 10°**



Solution:-

(a) 40°

From the given figure TS ‖ BE and also BS is transversal line.

By the rule of alternate interior angles, ∠EBS = ∠BST = 40°

Then, ∠y = 90° … [∵diagonal bisect at 90°]

Consider triangle TSO,

By the rule of exterior angle property of triangle

∠STO + ∠TSO = ∠SOE

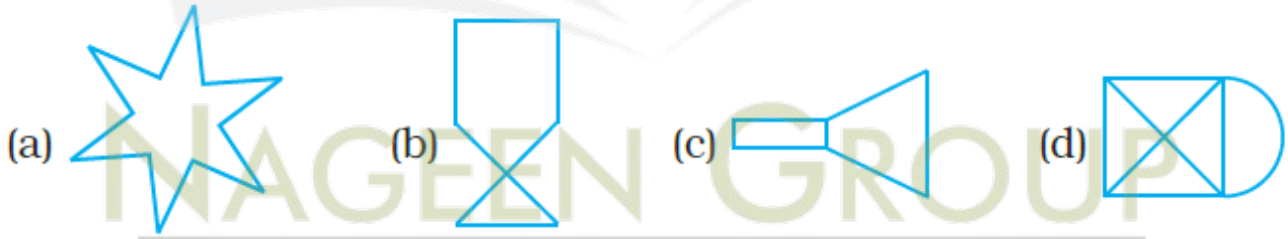
x + 40° = 90°

x = 90° – 40°

x = 50°

So, the value of y – x is = 90° – 40° = 50°

42. The closed curve which is also a polygon is



Solution:-

The closed curve which is also a polygon is figure (a). Because there is no line segments intersect each other.

43. Which of the following is not true for an exterior angle of a regular polygon with n sides?

(a) Each exterior angle = 360°/n

(b) Exterior angle = 180° – interior angle

(c) n = 360°/exterior angle

(d) Each exterior angle = ((n - 2) × 180°)/n)

Solution:-

(d) Each exterior angle = ((n - 2) × 180°)/n)

Because each exterior angle is equal to 360°/n

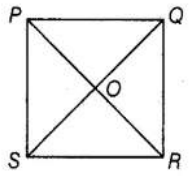
44. PQRS is a square. PR and SQ intersect at O. Then ∠POQ is a

(a) Right angle **(b) Straight angle**

(c) Reflex angle **(d) Complete angle**

Solution:-

(a) Right angle



The diagonals in the square intersect each other at right angle i.e. 90°

Therefore, ∠POQ is a right angle.

45. Two adjacent angles of a parallelogram are in the ratio 1:5. Then all the angles of the parallelogram are

(a) 30°, 150°, 30°, 150° **(b) 85°, 95°, 85°, 95°**

(c) 45°, 135°, 45°, 135° **(d) 30°, 180°, 30°, 180°**

Solution:-

(a) 30°, 150°, 30°, 150°

We know that, sum of adjacent angles of a parallelogram = 180°

Let us assume two angles be x and 5x

Then,

$x + 5x = 180^\circ$

$6x = 180^\circ$

$x = 180^\circ/6$

$x = 30^\circ$

Therefore the two angles are $x = 30^\circ$

$5x = 5 \times 30 = 150^\circ$

46. A parallelogram PQRS is constructed with sides QR = 6 cm, PQ = 4 cm and ∠PQR = 90°. Then PQRS is a

(a) square **(b) rectangle** **(c) rhombus** **(d) trapezium**

Solution:-

(b) rectangle

47. The angles P, Q, R and S of a quadrilateral are in the ratio 1:3:7:9. Then PQRS is a

(a) parallelogram **(b) trapezium with PQ || RS**

(c) trapezium with QR||PS **(d) kite**

Solution:-

(b) trapezium with PQ || RS

We know that, sum of all interior angle of quadrilaterals is equal to 360°.

Let us assume the angles be x, 3x, 7x, and 9x

Then,

$x + 3x + 7x + 9x = 360^o$

$20x = 360^o$

$x = 360/20$

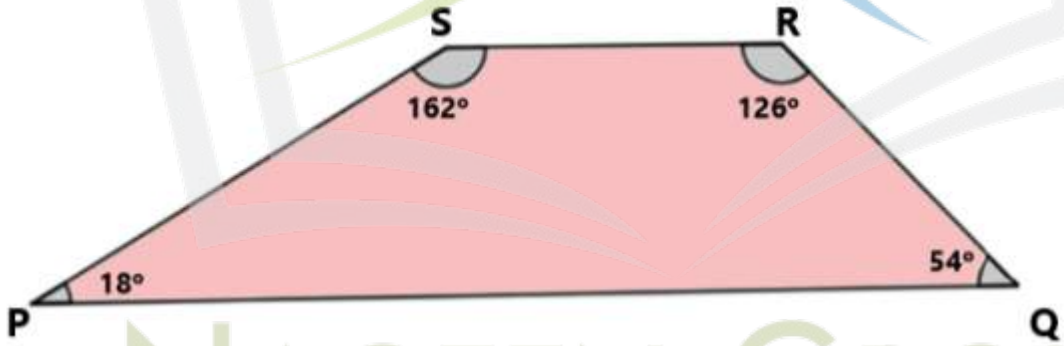
$x = 18$

Therefore the angles are $P = x = 18^o$

$Q = 3x = 3 \times 18 = 54^o$

$R = 7x = 7 \times 18 = 126^o$

$S = 9x = 9 \times 18 = 162^o$



Therefore, PQ || RS

48. PQRS is a trapezium in which PQ||SR and ∠P=130°, ∠Q=110°. Then ∠R is equal to:

(a) 70° **(b) 50°** **(c) 65°** **(d) 55°**

Solution:-

(a) 70°

We know that, the adjacent angles in a trapezium are supplementary.

$\angle R + \angle Q = 180^o$

$\angle R + 110^o = 180^o$

$\angle R = 180^o - 110^o$

$\angle R = 70^o$

49. The number of sides of a regular polygon whose each interior angle is of 135° is
(a) 6 (b) 7 (c) 8 (d) 9
Solution:-
Now let us assume number of sides of a regular polygon be n.
WKT, sum of all exterior angles of all polygons is equal to 360°.
Form the question it is given that each exterior angle has a measure of 45°.
Then,

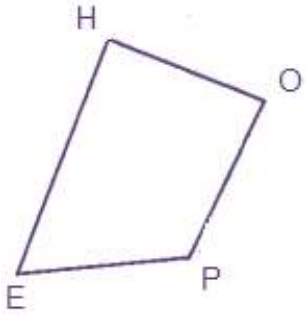
$n = 360^\circ/\text{Exterior angle}$
$n = 360^\circ/(180^\circ - 135^\circ)$
$n = 360^\circ/45^\circ$
$n = 8$

50. If a diagonal of a quadrilateral bisects both the angles, then it is a
(a) kite (b) parallelogram (c) rhombus (d) rectangle
Solution:-
(c) rhombus

51. To construct a unique parallelogram, the minimum number of measurements required is
(a) 2 (b) 3 (c) 4 (d) 5
Solution:-
(b) 3
To construct a unique parallelogram, we need the measurement of two adjacent sides of the parallelogram and the angle between them.

52. To construct a unique rectangle, the minimum number of measurements required is
(a) 4 (b) 3 (c) 2 (d) 1
Solution:-
(c) 2
To construct a unique rectangle, we need only the measurement of the length and the breadth of a rectangle.

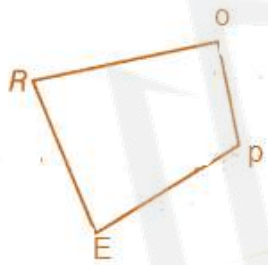
In questions 53 to 91, fill in the blanks to make the statements true.
53. In quadrilateral HOPE, the pairs of opposite sides are _____.
Solution:-
In quadrilateral HOPE, the pairs of opposite sides are HO and PE, HE and OP.



54. In quadrilateral ROPE, the pairs of adjacent angles are _____.

Solution:-

In quadrilateral ROPE, the pairs of adjacent angles are RO and OP, OP and PE, PE and ER, ER and RO.



55. In quadrilateral WXYZ, the pairs of opposite angles are _____.

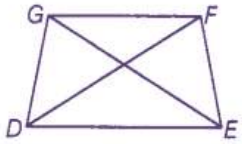
Solution:-

In quadrilateral WXYZ, the pairs of opposite angles are ∠W and ∠Y, ∠X and ∠Z.

56. The diagonals of the quadrilateral DEFG are _____ and _____.

Solution:-

The diagonals of the quadrilateral DEFG are DF and EG.



57. The sum of all _____ of a quadrilateral is 360°.
Solution:-
The sum of all angles of a quadrilateral is 360°.

58. The measure of each exterior angle of a regular pentagon is _____.
Solution:-
The measure of each exterior angle of a regular pentagon is 72°.
We know that, the measure of each exterior angle of a regular pentagon is 360°/n.
Where 'n' is the number of sides in the polygon,
Then, pentagon has 5 sides, i.e. n = 5
So, 360°/5
= 72°

59. Sum of the angles of a hexagon is _____.
Solution:-
Sum of the angles of a hexagon is 720°.
We know that, the sum of all the angles of a polygon is (n - 2) × 180°.
Where 'n' is the number of sides in the polygon,
Then, hexagon has 6 sides, i.e. n = 6
So, (n - 2) × 180°
(6 - 2) × 180°
4 × 180°
720°

60. The measure of each exterior angle of a regular polygon of 18 sides is _____.
Solution:-
The measure of each exterior angle of a regular polygon of 18 sides is 20°.
We know that, the measure of each exterior angle of a regular polygon is 360°/n.
Where 'n' is the number of sides in the polygon,
Then, polygon has 18 sides, i.e. n = 18
So, 360°/18
= 20°

61. The number of sides of a regular polygon, where each exterior angle has a measure of 36°, is _____.
Solution:-
The number of sides of a regular polygon, where each exterior angle has a measure of

36^o, is 10.
We know that, the measure of each exterior angle of a regular polygon is $360^o/n$.
Where 'n' is the number of sides in the polygon,
Then, exterior angle has a measure of 36^o
So, $36^o = 360^o/n$
$n = 360^o/36^o$
$n = 10$

62.  **is a closed curve entirely made up of line segments. The another name for this shape is _____.**
Solution:-
Concave polygon.
Concave polygon has more than one reflex angle.

63. A quadrilateral that is not a parallelogram but has exactly two opposite angles of equal measure is _____.
Solution:-
A quadrilateral that is not a parallelogram but has exactly two opposite angles of equal measure is kite.

64. The measure of each angle of a regular pentagon is _____.
Solution:-
The measure of each angle of a regular pentagon is 108.
We know that, the sum of all the angles of a polygon is $(n - 2) \times 180^o$.
Where 'n' is the number of sides in the polygon,
Then, pentagon has 5 sides, i.e. n = 5
So, $(n - 2) \times 180^o$
$(5 - 2) \times 180^o$
3×180^o
540^o
Measure of each angle = $540^o/5 = 108^o$

65. The name of three-sided regular polygon is _____.
Solution:-
The name of three-sided regular polygon is an equilateral triangle.

66. The number of diagonals in a hexagon is _____.
Solution:-
The number of diagonals in a hexagon is 9.
We know that,
The number of diagonals in a polygon of n sides is n(n - 3)/2
Where n = 6
Then,
= 6 × (6 - 3)/2
= 6 × 3/2
= 18/2
= 9

67. A polygon is a simple closed curve made up of only _____.
Solution:-
A polygon is a simple closed curve made up of only line segments.

68. A regular polygon is a polygon whose all sides are equal and all _____ are equal.
Solution:-
A regular polygon is a polygon whose all sides are equal and all angles are equal.

69. The sum of interior angles of a polygon of n sides is _____right angles.
Solution:-
The sum of interior angles of a polygon of n sides is 2n – 4 right angles.

70. The sum of all exterior angles of a polygon is _____.
Solution:-
The sum of all exterior angles of a polygon is 360^{o}.

71. _____ is a regular quadrilateral.
Solution:-
Square is a regular quadrilateral.
All the angles and sides of square are equal.

72. A quadrilateral in which a pair of opposite sides is parallel is _____.
Solution:-
A quadrilateral in which a pair of opposite sides is parallel is trapezium.

73. If all sides of a quadrilateral are equal, it is a _____.
Solution:-
If all sides of a quadrilateral are equal, it is a rhombus, square.

74. In a rhombus diagonals intersect at _____ angles.
Solution:-
In a rhombus diagonals intersect at right angles.

75. _____ measurements can determine a quadrilateral uniquely.
Solution:-
5 measurements can determine a quadrilateral uniquely.
5 measurements are four sides one angle or 3 sides and 2 included angle.

76. A quadrilateral can be constructed uniquely if its three sides and _____ angles are given.
Solution:-
A quadrilateral can be constructed uniquely if its three sides and 2 included angles are given.

77. A rhombus is a parallelogram in which _____ sides are equal.
Solution:-
A rhombus is a parallelogram in which all sides are equal.

78. The measure of _____ angle of concave quadrilateral is more than 180^o.
Solution:-
The measure of 1 angle of concave quadrilateral is more than 180^o.

79. A diagonal of a quadrilateral is a line segment that joins two _____ vertices of the quadrilateral.

Solution:-
A diagonal of a quadrilateral is a line segment that joins two opposite vertices of the quadrilateral.

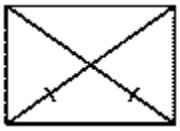
80. The number of sides in a regular polygon having measure of an exterior angle as 72^o is _____.
Solution:-
The number of sides in a regular polygon having measure of an exterior angle as 72^o is 5.
We know that, the measure of each exterior angle of a regular pentagon is $360^o/n$.
Where 'n' is the number of sides in the polygon,
Then, pentagon has exterior angle = 72^o
So, $72^o = 360^o/n$
$n = 360^o/72^o$
$n = 5$

81. If the diagonals of a quadrilateral bisect each other, it is a _____.
Solution:-
If the diagonals of a quadrilateral bisect each other, it is a Parallelogram.

82. The adjacent sides of a parallelogram are 5 cm and 9 cm. Its perimeter is _____.
Solution:-
The adjacent sides of a parallelogram are 5 cm and 9 cm. Its perimeter is 28 cm.
We know that, perimeter of Parallelogram = 2 × (sum of lengths of adjacent sides)
$= 2 \times (5 + 9)$
$= 2 \times 14$
$= 28$ cm

83. A nonagon has _____ sides.
Solution:-
A nonagon has 9 sides.

84. Diagonals of a rectangle are _____.
Solution:-
Diagonals of a rectangle are equal.



85. A polygon having 10 sides is known as _____.
Solution:-
A polygon having 10 sides is known as Decagon.

86. A rectangle whose adjacent sides are equal becomes a _____.
Solution:-
A rectangle whose adjacent sides are equal becomes a Square.

87. If one diagonal of a rectangle is 6 cm long, length of the other diagonal is _____.
Solution:-
If one diagonal of a rectangle is 6 cm long, length of the other diagonal is 6cm.
Because, diagonals of a rectangle are equal.

88. Adjacent angles of a parallelogram are _____.
Solution:-
Adjacent angles of a parallelogram are supplementary.

89. If only one diagonal of a quadrilateral bisects the other, then the quadrilateral is known as _____.
Solution:-
If only one diagonal of a quadrilateral bisects the other, then the quadrilateral is known as kite.

90. In trapezium ABCD with AB||CD, if $\angle A = 100^o$, then $\angle D$ = _____.
Solution:-
In trapezium ABCD with AB||CD, if $\angle A = 100^o$, then $\angle D = 80^o$.
We know that, in trapezium adjacent angles of non – parallel sides are supplementary.

$\angle A + \angle D = 180^o$
$100^o + \angle D = 180^o$
$\angle D = 180^o - 100^o$
$\angle D = 80^o$

91. The polygon in which sum of all exterior angles is equal to the sum of interior angles is called _____.

Solution:-

The polygon in which sum of all exterior angles is equal to the sum of interior angles is called Quadrilateral.

In questions 92 to 131 state whether the statements are true (T) or (F) false.

92. All angles of a trapezium are equal.

Solution:-

False.

Because, all angles of a trapezium are not equal.

93. All squares are rectangles.

Solution:-

True.

All squares are rectangles, because it has 4 right angles.

94. All kites are squares.

Solution:-

False.

In kites all the angles are not equal to 90^o but, in the square all angles are equal to 90^o.

95. All rectangles are parallelograms

Solution:-

True.

Because, all the properties of parallelogram are satisfied by the rectangle.

96. All rhombuses are squares.

Solution:-

False.

Because, the angels of rhombus are not equal to 90^o so all rhombuses are not squares.

97. Sum of all the angles of a quadrilateral is 180^o.

Solution:-

False.

Sum of all the angles of a quadrilateral is 360^o.

98. A quadrilateral has two diagonals.
Solution:-
True.

99. Triangle is a polygon whose sum of exterior angles is double the sum of interior angles.
True.

100. is a polygon.
Solution:-
False.
The given figure intersects with itself more than once.

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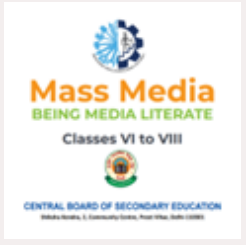

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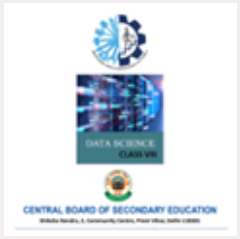

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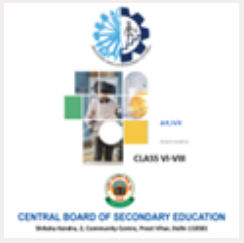

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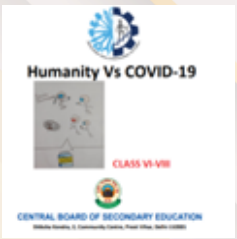

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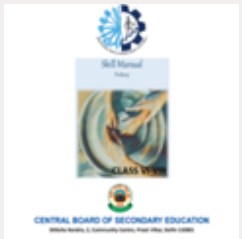

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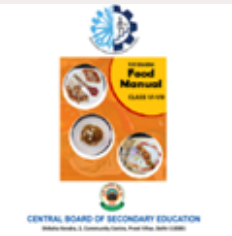

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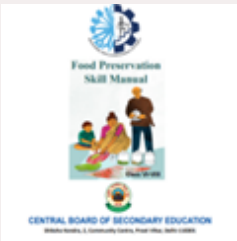

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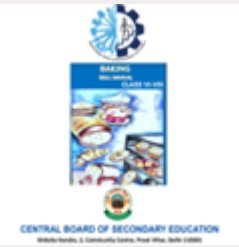

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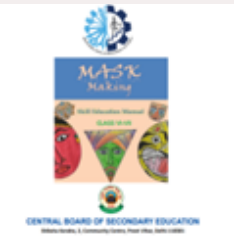

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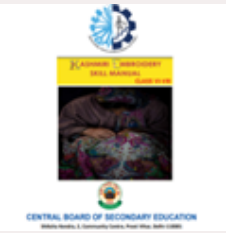

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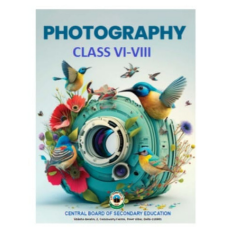

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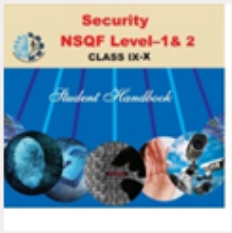

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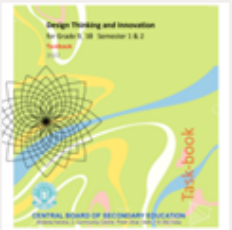

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Retail

InformationTechnology

Web Application

Automotive

Financial Markets Management

Tourism

Beauty & Wellness

Agriculture

Food Production

Front Office Operations

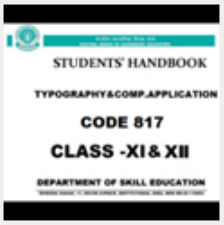
Banking

Marketing

Health Care

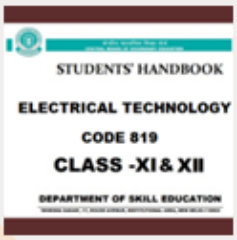
Insurance

Horticulture



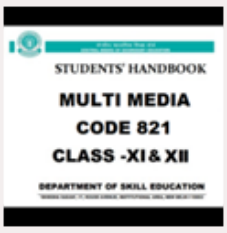
Typography & Comp. Application

Geospatial Technology



Electrical Technology

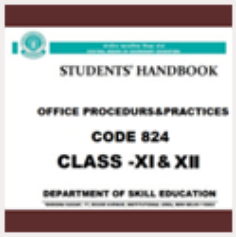
Electronic Technology



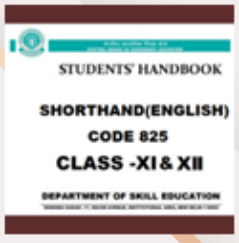
Multi-Media

Taxation

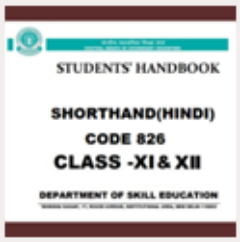
Cost Accounting



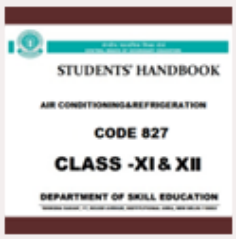
Office Procedures & Practices



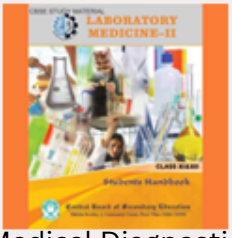
Shorthand (English)



Shorthand (Hindi)



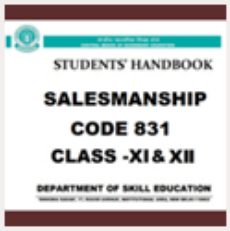
Air-Conditioning & Refrigeration



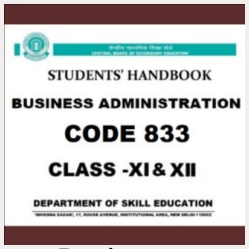
Medical Diagnostics

Textile Design

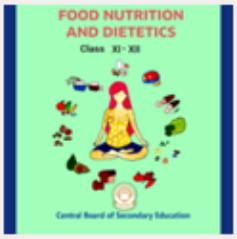
Design



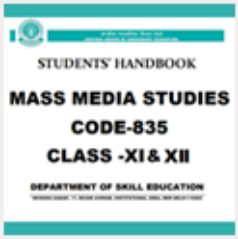
Salesmanship



Business Administration



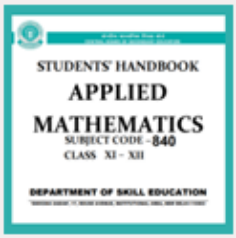
Food Nutrition & Dietetics



Mass Media Studies

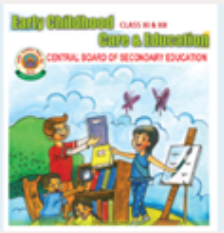
Library & Information Science

Fashion Studies



Applied Mathematics

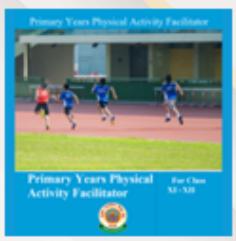
Yoga



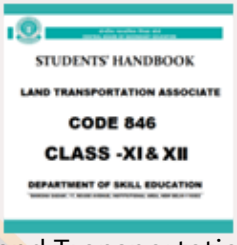
Early Childhood Care & Education

Artificial Intelligence

Data Science



Physical Activity Trainer(new)



Land Transportation Associate (NEW)

Electronics & Hardware (NEW)

Design Thinking & Innovation (NEW)